

AJ a substantially annular upper portion having a bottom surface joined to the lower portion and a top surface fixed to and abutting the base, wherein the upper lower portion is made of a metal which is more rigid than the plastic.

2. The carrier head of claim 1, wherein the plastic is substantially inert to a chemical mechanical polishing process.

3. (Amended) The carrier head of claim 1, wherein the lower portion has a durometer measurement between about 80 and 95 on the Shore D scale.

A2 4. (Amended) The carrier head of claim 1, wherein the lower portion is between about 100 and 400 mils thick.

5. (Amended) The carrier head of claim 4, wherein the upper portion is thicker than the lower portion.

6. The carrier head of claim 1, wherein the plastic is selected from the group consisting of polyphenylene sulfide, polyethylene terephthalate, polyetheretherketone, and polybutylene terephthalate.

7. The carrier head of claim 6, wherein the plastic is polyphenylene sulfide.

8. The carrier head of claim 1, wherein the metal is selected from the group consisting of steel, aluminum, and molybdenum.

9. The carrier head of claim 1, wherein the metal material has an elastic modulus about ten to one-hundred times the elastic modulus of the plastic material.

(10) The carrier head of claim 1, wherein the lower portion is adhesively attached to the upper portion.

11. The carrier head of claim 10, wherein the adhesive is a slow curing epoxy.

12. The carrier head of claim 1, wherein the lower portion is press fit to the upper portion.

13. (Amended) A retaining ring for a carrier head having a mounting surface for a substrate, comprising:

A3 a generally annular lower portion having a bottom surface [for contacting a polishing pad during polishing], the lower portion made of a plastic; and

a generally annular upper portion having a bottom surface secured to the lower portion and a top surface having a top surface configured to be mechanically affixed to and abut a rigid base of a carrier head, wherein the upper portion is made of a metal which is more rigid than the plastic.

Please add claims 14-30.

14. The retaining ring of claim 13, wherein the plastic is substantially inert to a chemical mechanical polishing process.

15. The retaining ring of claim 13, wherein the lower portion has a durometer measurement between about 80 and 95 on the Shore D scale.

A4 16 The retaining ring of claim 13, wherein the lower portion is between about 100 and 400 mils thick.

17. The retaining ring of claim 16, wherein the upper portion is thicker than the lower portion.

18. The retaining ring of claim 13, wherein the plastic is selected from the group consisting of polyphenylene sulfide, polyethylene terephthalate, polyetheretherketone, and polybutylene terephthalate.

19. The retaining ring of claim 18, wherein the plastic is polyphenylene sulfide.

20. The retaining ring of claim 13, wherein the metal is selected from the group consisting of steel, aluminum, and molybdenum.

21. The retaining ring of claim 13, wherein the metal material has an elastic modulus about ten to one-hundred times the elastic modulus of the plastic material.

22. The retaining ring of claim 13, wherein the lower portion is adhesively attached to the upper portion.

23. The retaining ring of claim 22, wherein the adhesive is a slow curing epoxy.

24. The retaining ring of claim 13, wherein the lower portion is press fit to the upper portion.

25. A retaining ring for a carrier head having a mounting surface for a substrate, comprising:

a generally annular lower portion having a bottom surface for contacting a polishing pad during polishing, the lower portion made of a first material that is substantially inert to a chemical mechanical polishing process and has a durometer measurement between about 80 and 95 on the Shore D scale and a first thickness between 100 and 400 mils; and

a generally annular upper portion having a bottom surface secured to the lower portion and a top surface having a top surface configured to be mechanically affixed to and abut a rigid base of a carrier head, wherein the upper portion is made of a second material which is more

rigid than the first material and has a second thickness greater than the first thickness and an elastic modulus about ten to one-hundred times the elastic modulus of the first material.

26. The retaining ring of claim 25, wherein the first material is a plastic.

27. The retaining ring of claim 26, wherein the plastic is selected from the group consisting of polyphenylene sulfide, polyethylene terephthalate, polyetheretherketone, and polybutylene terephthalate.

28. The retaining ring of claim 27, wherein the plastic is polyphenylene sulfide.

29. The retaining ring of claim 25, wherein the second material is a metal.

30. The retaining ring of claim 25, wherein the metal is selected from the group consisting of steel, aluminum, and molybdenum.

REMARKS

I. Information Disclosure Statement

Applicant submitted an Information Disclosure Statement (IDS) on May 8, 2002, one day prior to the mailing date of the present Office Action. Applicant requests that the Examiner initial and return a copy of the Form-1449 from the IDS.

II. Claims

Claims 1, 3-4 and 13 have been amended. Claims 14-30 have been added. Claims 1-30 are now pending.

The Examiner rejected claims 3 and 4 as indefinite. Claim 3 has been amended, rendering the Examiner's rejection moot.

The Examiner rejected claims 1-13 as allegedly obvious over Kubo in view of Kim, *Machine Design* and *DSM*.